IN THE CLAIMS

Please amend the claims as follows:

with a determined degree of synchronization.

1-18. (Canceled).

19. (Currently Amended) A method of a real time medical or cognitive monitoring device for analyzing synchronizations of electroencephalography of an individual using a set of sensors starting from cerebral electromagnetic analysis of the individual, comprising: creating a database comprising:

acquisition and digitization of electrophysiological signals output from the sensors,

between all pairs of sensors recorded in an assembly protocol, in frequency bands between 0 and 2000 Hz, to build up the database of classes each characterizing a reference state of cerebral electromagnetic activity of said individual; statistical validation, by the real time medical or cognitive monitoring device, of a period analyzed in real time, which assigns the period to a class in the database; and detecting, by the real time medical or cognitive monitoring device, a specific period

20. (Previously Presented) A method according to claim 19, further comprising an analysis associated with at least one type of electrophysiological signals among electrocardiograms, electrocardiograms, electrocardiograms, breathing signals.

- 21. (Previously Presented) A method according to claim 19, wherein a PLS method is used during the statistical validation, which estimates a phase difference between oscillations of signals from two electrodes.
- 22. (Previously Presented) A method according to claim 21, wherein a statistical level of PLS synchronization between two signals is evaluated using circular variance of the phase difference between the signals.
- 23. (Previously Presented). A method according to claim 21, wherein a statistical level of PLS synchronization between two signals is evaluated using normalized Shannon entropy of the phase difference between the signals.
- 24. (Previously Presented) Application of the method according to claim 19, to real time medical or cognitive monitoring.
- 25. (Previously Presented) Application of the method according to claim 19, for characterizing and differentiating physiological or pathological states.
- 26. (Previously Presented) Application of the method according to claim 25, for anticipating occurrence of epileptic seizures.
- 27. (Previously Presented) Application of the method according to claim 25, for diagnosis assistance in early stage of Parkinson's and Alzheimer's diseases.

Application No. 10/531,311 Reply to Office Action of January 23, 2009

28. (Previously Presented) Application of the method according to claim 25, for diagnosis assistance of schizophrenia and depression.

29. (Currently Amended) A real time medical or cognitive monitoring device starting from cerebral electromagnetic analysis of an individual, comprising:

means for acquiring and digitizing electrophysiological signals output from sensors; means for calculating synchronization correlation of phase variations between all pairs of sensors recorded in an assembly process, in frequency bands between 0 and 2000 Hz, to build up a database of classes each characterizing a reference state of cerebral electromagnetic activity of said individual;

means for statistically validating a period analyzed in real time to assign the period to a class in the database;

means for detecting a cognitive period or a specific pathological period; and means for sending an alert signal if applicable.

- 30. (Previously Presented) A device according to claim 29, further comprising means for performing an analysis associated with at least one type of electrophysiological signals among electrocardiograms, electrooculograms, electrodermograms, breathing signals.
- 31. (Previously Presented) A device according to claim 29, wherein a PLS method is used by the means for statistically validating, which estimates a phase difference between oscillations of signals from two electrodes.

Application No. 10/531,311 Reply to Office Action of January 23, 2009

- 32. (Previously Presented) A device according to claim 31, wherein a statistical level of a PLS synchronization between two signals is evaluated using circular variance of the phase difference between the signals.
- 33. (Previously Presented) A device according to claim 31, wherein a statistical level of PLS synchronization between two signals is evaluated using normalized Shannon entropy of the phase difference between the signals.
 - 34. (Previously Presented) A device according to claim 29, further comprising: circuits for acquisition of signals representing electrical activity of the brain; a processor configured for acquisition and processing of the signals; and an alert circuit for the patient or for his/her environment.
- 35. (Previously Presented) A device according to claim 29, which is a device that the individual can carry himself or herself.
- 36. (Previously Presented) A device according to claim 29, miniaturized to be implanted subcutaneously.